HORTICULTURE LAMPS

MADE IN GERMANY

THE HIGHEST QUALITY STANDARDS

MADE IN GERMANY

AUVL™

THE COMPANY

HISTORY

In 1906, the „Glühlampenwerk“ later renamed into “Berliner Glühlampenwerk Osram” was founded in Berlin. After the end of World War II, parts of the plants became national property in the former German Democratic Republic and the trade name NARVA was founded in 1957.

After the German reunification the newly named company “G.L.E – Gesellschaft für Lichttechnische Erzeugnisse mbH” was founded and moved to its current manufacturing site in 1994. All kinds of AUVL high-pressure discharge lamps are developed and produced at its Berlin location.

Its product portfolio includes a wide range of applications – starting with professional lamps for roads and industrial plants to tailor-made developments for plant cultivation.

G.L.E. unites its many years of research, development and production expertise with the flexibility of an owner-managed, medium-sized business. The result of this unique amalgamation is first class products, developed and produced to German quality standards.

Production Base Germany.
Quality and Planning Security.

Production based in the capital of Germany; Berlin is important to AUVL as it is located in the center of Europe. With its excellent infrastructure, we can supply our customers quickly – even for short-notice repeat orders. The company is characterized by customer proximity and emphasis on service orientation. Our sales representatives go to the customer on location, and the production facilities are open to the customer.

The highest appreciation for quality and keeping to deadlines is also reflected in the area of environmental protection. Our products are certified to ISO 9001:2015 and are also developed and sold in such a way, that the environment is affected as little as possible both in manufacture, in use and disposal.

Due to the good legal framework conditions in Germany, we can also focus on high innovation capacity and so invest in the development of new forward-thinking technologies.
In comparison with other manufacturing sites, production in Germany offers our customers and partners high levels of planning security in many areas.

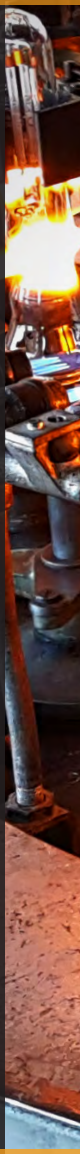
Along with the two production sites in Germany (Berlin and Brand-Erbisdorf), the JW Holding headquarters and AUVL sales office in Stuttgart, which supports customers in Europe, Asia and South America, we also have our North American sales office in Boston, MA and a distribution center in Atlanta, GA to service our customers in the United States of America and Canada.

Production Sites

GLE | All our AUVL's Grow Green lamps are developed and produced at our manufacturing site in Berlin. The portfolio of our high-pressure discharge lamps is for the horticulture market up to tailor-made developments for special applications. Our production site in Berlin is also specialized on AUVL UVC Lamps.

NARVA | Other AUVL products like lamps for curing or analysis of materials are developed and manufactured at our second production site in Brand-Erbisdorf near Dresden, Germany. All AUVL products have been tested and passed through our quality assurance process in order to guarantee consistently high quality.

Quality made in Germany.
Proven by international clients.



AUVL – Competence in Lamp Technology.

For many decades the brand AUVL enjoys a worldwide reputation in lamp technology. AUVL is internationally regarded for its quality, safety and flexibility. As a manufacturer of light sources, we strategically rely on our manufacturing sites in Germany and we produce our lamps both in Berlin and Brand-Erbisdorf (near Dresden).

Our products are used in conventional greenhouses and laboratories in both horticulture and legal hydroponics markets. Made in Germany is regarded in the world as a guarantee of high-quality products manufactured with modern technology, traditional craftsmanship and long years of experience.

The first high pressure sodium lamps were developed and used in general lighting from lighting sports fields to parking slots before in the 1960s GLE started its lamp production for seedling cultivation.
In the same decade the metal halide lamps were developled not only for general interior lighting for retail stores and factories but for plants. This development continued so that a year-round supply of the main fruits and vegetables could be provided.

The reserach in new fields for the horticulture market made it necessary to invest in projects like the ceramic metal halide lamps which were developed in the 1990s.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EXPERIENCE FROM TRADITION

OUR EXPERTISE

More than 60 years' experience in Germany
with professional development and fabrication

In-house test and measurement laboratory
with state-of-the-art equipment

Germany quality management standard

OUR SERVICES

High-quality products conforming
to international standards

Individual solutions tailored
to customers' needs

Reliable and consistently high product quality

AUVL IS A VALUE ADDING BRAND FOR MANY CUSTOMERS AROUND THE WORLD

OUR STRENGHT

Leading products and solutions

Competences in all leading HID technologies

Technological leadership is turned into product innovation

Reliable partner

German manufacturer with long tradition

Partnership is the key leading to Win Win-Approach

Quality driven organization

ISO 9001 certification

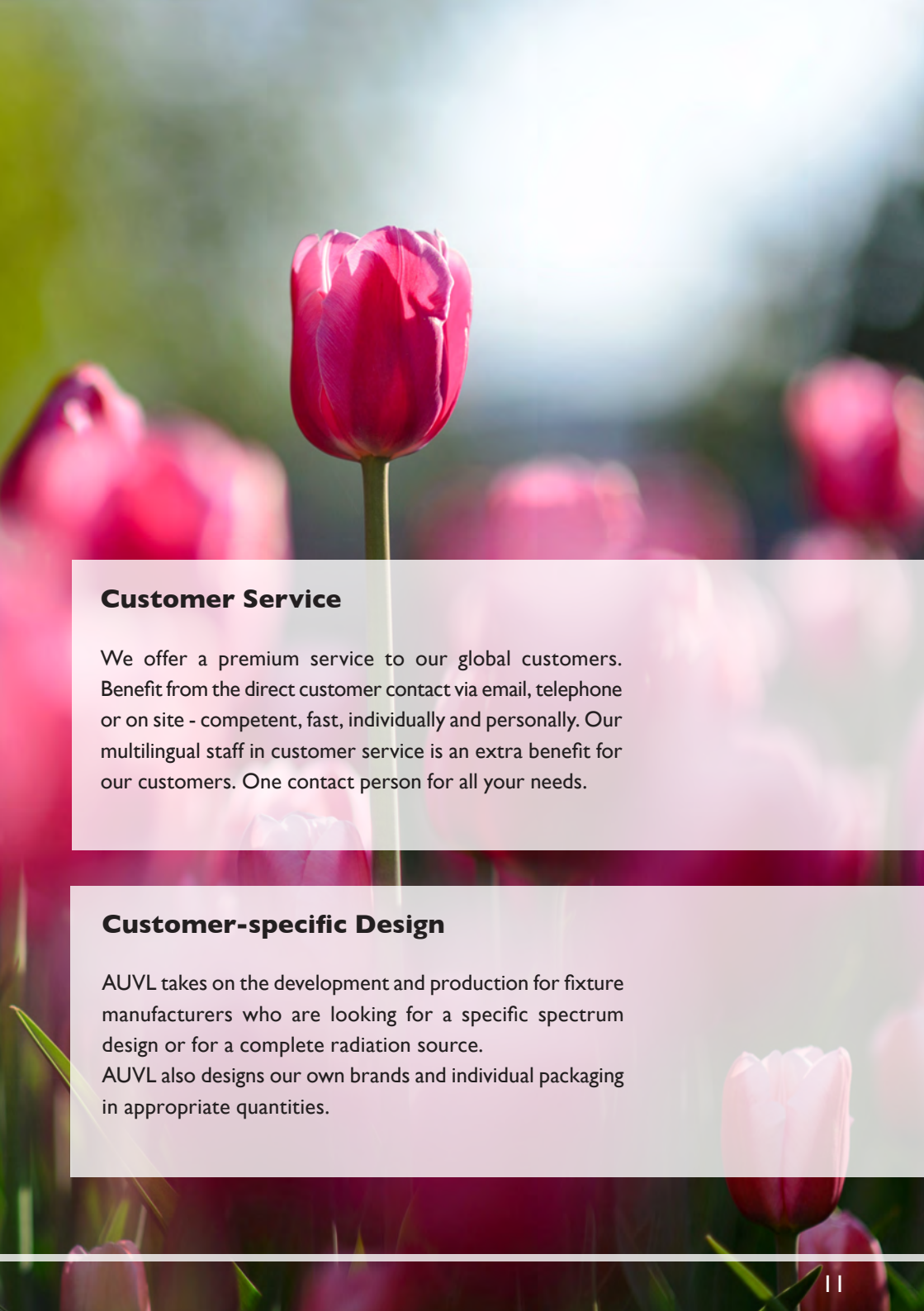
We create value for our customers.
Always doing the right thing for our clients.

Made In Germany

For us, "Made in Germany" is more than just a label, and horticulture is more than just an area of business.
Our many years of tradition, high quality-consciousness and professionalism play an important role for us. Our customers benefit from market proximity, high flexibility and from working in partnership with us.

Clear, transparent distribution structures

Our products are sold both by wholesalers as AUVL brand and as their private label and by fixture manufacturers. That means that we do not sell directly to the end customer or through a website of our own.



Customer Service

We offer a premium service to our global customers. Benefit from the direct customer contact via email, telephone or on site - competent, fast, individually and personally. Our multilingual staff in customer service is an extra benefit for our customers. One contact person for all your needs.

Customer-specific Design

AUVL takes on the development and production for fixture manufacturers who are looking for a specific spectrum design or for a complete radiation source.
AUVL also designs our own brands and individual packaging in appropriate quantities.

PLANT LIGHTING

The eating habits of today's generation differ dramatically from those of bygone times. Fresh foods such as fruit and vegetables are available at anytime and anywhere. There is currently a high demand for such products the whole year round.

In order to satisfy this demand, in recent decades a completely new industry has developed, which has set itself the task of having these fresh foods available at all times. But this means that they have to produce all year round under controlled conditions.

Optimum lighting of plants during all their growth phases is the basic requirements to enable high-yield production all year round.

AUVL provides a broad product portfolio for this purpose, which takes into account all the plants' needs and therefore ensures maximum yields.

Light color and its effect on plants.
Growth light in the most useful spectrum.

Efficiency

Plant growth and development requires a full spectrum light that not only includes visible portion of the electromagnetic spectrum, photosynthetic active radiation, but also provides small partitions of ultraviolet (<400nm) and infrared (far red; >700nm) wavelengths.

Lamps that provide a full spectrum of light simulate natural growing conditions that can lead to healthy plants. Grow Green lamps have been developed with this in mind; they efficiently convert electricity into full spectrum light output to provide an excellent lighting source for plant growth.

UV light
- promotes strenght
- intensifies flower color
- less chlorophyll

Blue light
- stimulates photosynthesis
- promotes translocation of assimilates
- stimulates the formation of chloroplasts and chlorophyll
- opens the stomata
- compact plant structure
- small, thick leaf

Red light
- stimulates photosynthesis
- slows upward plant growth
- stimulates branching
- gives a smaller leaf surface with a thicker leaf

Infrared light
- stimulates upward plant growth
- slows branching
- larger, thinner leaf
- promotes flowering and setting of fruit

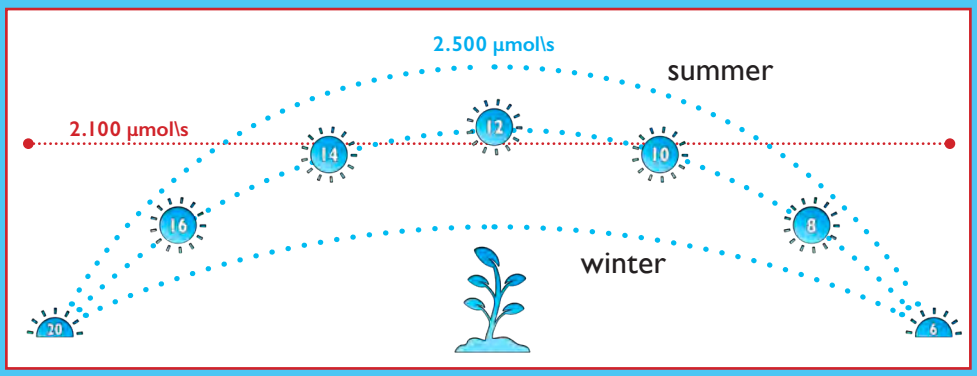
Source: Wageningen University and Research

Photosynthetic Active Radiation (PAR)

The visible portion of the electromagnetic spectrum used for photosynthesis is known as photosynthetic active radiation (PAR). PAR ranges from 400nm (violet) to 700nm (red) and encompasses all colors visible to the human eye. The intensity of PAR is measured by the number of photons (particles of light energy) that reach a surface per unit time, this is called the photosynthetic photon flux density (PPFD) measured in $\mu mol \cdot m^{-2} \cdot s^{-1}$.

To ensure proper plant growth and development it is important to maintain the correct and consistent average light distribution and light intensity.

This can be accomplished with supplemental lighting used to maintain the desired light levels.



AUVL GROW GREEN
Sodium Lamps Single Ended (HPS SE)

Highly effective HPS lamps.

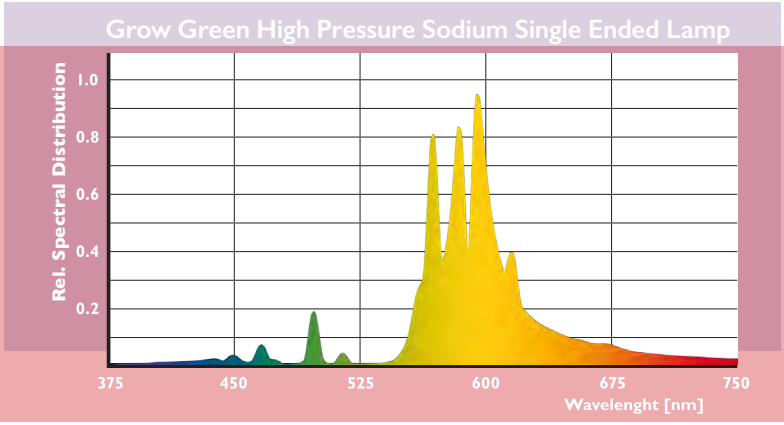
AUVL GROW GREEN Sodium Lamps are first-class quality, high-pressure sodium lamps with ceramic discharge tubes for high efficiency and efficacy at great light output and a reliable service life.
High-pressure sodium lamps produce a broader spectrum of light than the low-pressure lamps and are commonly used as plant grow light. The AUVL Grow Green Sodium Lamps are designed for operating with choke ballast and ECG / electronic ballasts.

Article No.	Type	Wattage	Base*	PAR µmol\s	Lumen lm	Nominal Voltage	Nominal life time	Box
80100814	250W HPS 230V E40 GROW GREEN	250W	E40	406	33.200	230V	12.000 h	12
80101920	400W HPS 230V E40 GROW GREEN	400W	E40	725	56.500	230V	12.000 h	12
80101921	600W HPS 230V E40 GROW GREEN	600W	E40	1.100	93.000	230V	12.000 h	12
80101931	600W HPS 230V ENHANCED FLOWERING	600W	E40	1.100	85.000	230V	8.000 h	12
80100121	600W HPS 400V E40 GROW GREEN	600W	E40	1.150	87.000	400V	12.000 h	12
80101126	750W HPS 400V E40 GROW GREEN	750W	E40	1.400	110.000	400V	12.000 h	12
80104021	1000W HPS 230V E40 GROW GREEN	1000W	E40	1.650	142.000	230V	12.000 h	12
80100124	1000W HPS 400V E40 GROW GREEN	1000W	E40	2.100	155.000	400V	12.000 h	12

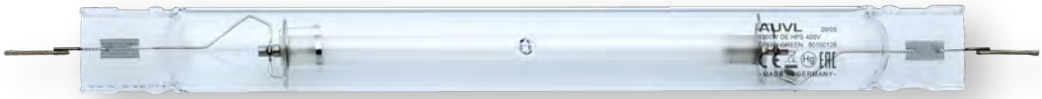
*all products are also available with base E39

Advantages

- Highly effective PAR light output
  - Very high yield of light through AUVL technology
  - Optimum lifetime performance
- Stimulation of growth in all phases of development
  - Fast and qualitative growth
  - Abundant red light for more photosynthesis
- High energy efficiency
  - Savings through AUVL technology
  - Long service life with reduced maintenance
- Designed for operating with choke ballast and ECG / electronic ballasts
- Product quality "Made in Germany"



AUVL GROW GREEN
Sodium Lamps Double Ended (HPS DE)



AUVL Double Ended Sodium lamps create an even spread of light.

The construction design of AUVL Grow Green double-ended sodium lamps enable the lamp to spread light very evenly and allow for stable operation in Dim & Boost mode because of their high-quality components.

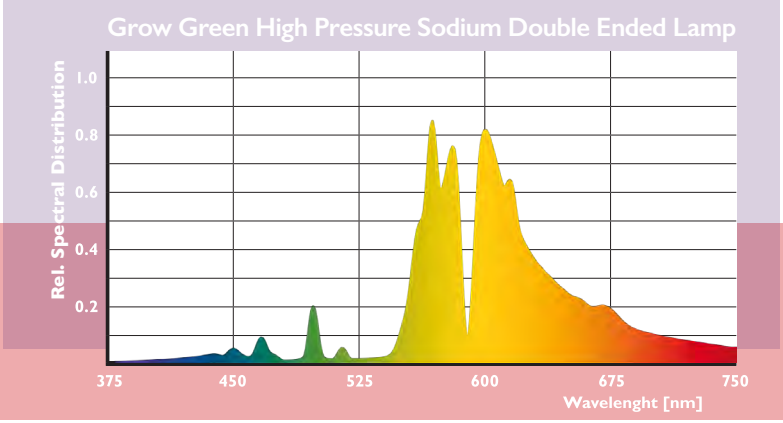
They have a higher light intensity and a longer lifetime in comparison to most conventional single-ended sodium vapour lamps.

AUVL Grow Green double-ended Sodium Lamps support the plants in crucial fruiting and flowering stages to receive up to 25% higher yield.

Article No.	Type	Wattage	Base	PAR µmol\s	Lumen lm	Nominal Voltage	Nominal life time	Box
80100128	1000W DE HPS 400V GROW GREEN	1000W	cable	2.100	147.000	400V	10.000 h	12
80102126	750W DE HPS 400V GROW GREEN	750W	cable	1.400	106.000	400V	10.000 h	12

Advantages

- Long life of 10,000 hours (12B10)
- Stable photon flow ≥ 90% over the lifetime
- 10-20% higher light intensity than conventional sodium vapour lamps
- First choice for the flowering stage due to the high proportion of red light
- More stable mounting due to 2-sided connection K12x30s – advantages in illumination
- High photon flow of 2,100 µmol/s
- Designed for operating with all major ECG's / electronic ballasts
- Stable operation in Dim & Boost mode possible



AUVL GROW GREEN
Metal Halide Lamps (MH SE)

AUVL sets standards in lamp technology and is always compatible.

AUVL lamps have been tested with all common electronic and magnetic ballasts, meaning that they are guaranteed to be compatible with your system!

Excellent radiation over the service life, not to mention the significant light yield, provides the greenhouse owner or hobby gardener with optimum economic viability and an improved harvest yield across a multitude of areas of use.

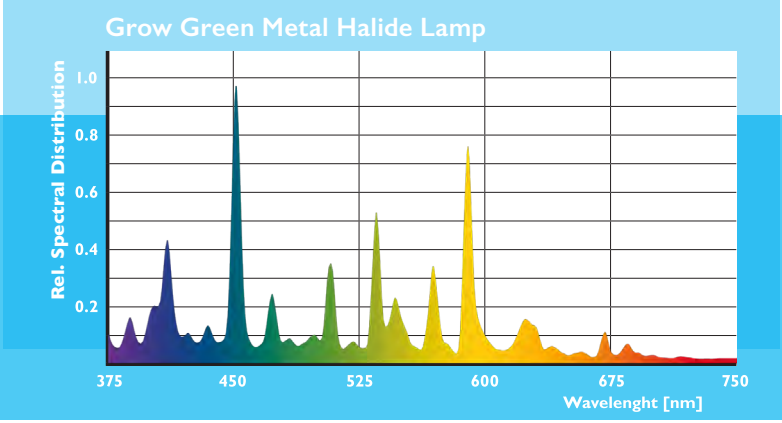
Article No.	Type	Wattage	Base*	PAR µmol\s	Lumen lm	Nominal Voltage	Nominal life time	Box
80103136	250W MH 230V E40 GROW GREEN	250W	E40	290	19.000	230V	16.000 h	12
80101225	400W MH 230V E40 GROW GREEN	400W	E40	490	32.000	230V	16.000 h	12
80101226	600W MH 230V E40 GROW GREEN	600W	E40	730	47.000	230V	16.000 h	6
20100322	1000W MH 230V E40 GROW GREEN	1000W	E40	1.250	82.000	230V	12.000 h	6
80102014	1000W MH 400V E40 GROW GREEN	1000W	E40	1.350	85.000	400V	12.000 h	6
76000470	1000W / 5500K DE MH GROW GREEN	1000W	K12x30s	1.800	97.000	400V	6.000 h	12

*all products are also available with base E39

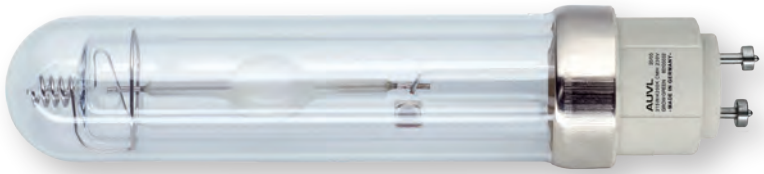
AUVL GROW GREEN Metal Halide Lamps have a quartz arc tube with additional metal halide compounds to improve efficiency and color rendition of the light.

Advantages

- Promotes fast growth of compact, strong plants
  - Produces a compact plant structure
  - Forms small, thick leaf
  - Opens the flower
- Effective light output across service life
- Exchangeable with sodium lamps
- Designed for operating with choke ballast and ECG / electronic ballasts
- Product quality "Made in Germany"



AUVL GROW GREEN
Ceramic Metal Halide (CMH)



AUVL CMH lamps - Innovation Made in Germany.

Our AUVL Grow Green Ceramic Metal Halide Lamps are used if the highest demands in plant illumination are required.

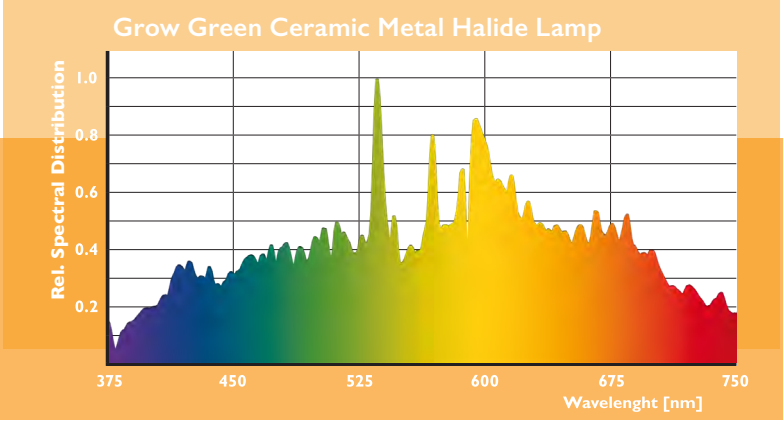
Higher vaporisation temperatures are achieved with the ceramic tube used, which leads to high efficiency and a proportion of blue light close to daylight.

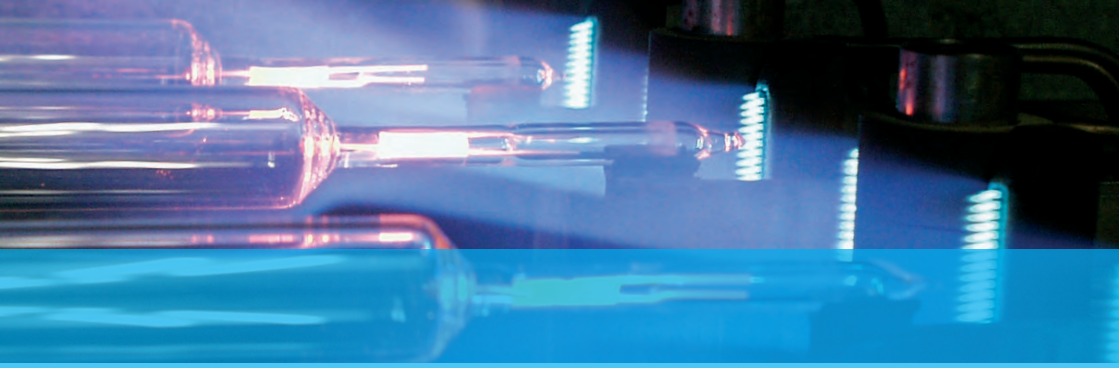
Due to its full light spectrum and high colour stability over the entire lifetime, the AUVL Grow Green CMH can support the plants in all growth phases and achieve higher yields.

Article No.	Type	Wattage	Base	PAR µmol\s	Lumen lm	Nominal Voltage	Average life time (12B50)	Box
80105030	315W/3100K CMH 230V GROW GREEN	315W	PGZX18	620	33.000	230V	20.000 h	12
80105032	315W/4200K CMH 230V GROW GREEN	315W	PGZX18	585	36.000	230V	20.000 h	12
80105221	630W/3100K DE CMH GROW GREEN	630W	K12X30s	1.100	63.000	400V	20.000 h	12
80105222	630W/4200K DE CMH GROW GREEN	630W	K12X30s	1.100	63.000	400V	20.000 h	12
16000691	Socket Adapter PGZ18 to E39							

Advantages

- Reliable and efficient ceramic-metal-halogen technology
- Up to 40 % more light – significantly more efficient than conventional quartz-metal vapour lamps
- Spectrum delivers more UV-A light
- Very good color reproduction (advantage when assessing bloom color quality)
- Longer lifetime than quartz-metal halogen lamps
- Stable PAR-performance
- High colour stability





The Company.
Dedicated to business, close to the clients.

AUVL is the internationally known German brand for technical light sources. For many years we have been delivering high quality lamps for the horticulture market that have been developed and manufactured in Berlin, Germany.
Our lamps are highly efficient, durable and provide high yields. After the foundation of the lighting factory in Berlin in 1906, then better known as "Berliner Glühlampenwerk Osram", the company was renamed and changed hands several times in the course of history. Since 1994 it is known as "G.L.E. – Gesellschaft für lichttechnische Erzeugnisse mbH".

The manufacturing site in Berlin together with the plant in Brand-Erbisdorf (near Dresden) is part of the international JW Holding Group and benefits from having access to the highest level of expertise in science and technology. This also includes an international network in the lighting industry, first class service, quality and state-of-the-art logistic solutions as well as multilingual customer service.

AUVL
ADVANCED UV LIGHT

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